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Going beyond "interactive": developing scientist-apprentices in the physics lecture hall

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Though an extensive amount of literature documents the improved learning gains made by interactive teaching compared to traditional lecture delivery, results vary widely between courses[1]. Part of the problem is that different instructors aim for active learning through widely varying (and sometimes conflicting) approaches[2]. In addition, even the most well-verified and effective teaching approach will fail without student buy in. I propose a simple framework that can help you identify effective active learning instructional strategies and how to implement them successfully. Results (both positive and less than positive) from a large first-year physics course will be discussed.
[1] one example among 100s: Freeman et al., Proceedings of the National Academy of Sciences 111, 8410 (2014). For a contrasting view, Andrews et al., CBE-Life Sciences Education 10, 394-405 (2011)
[2] Turpen and Finkelstein, Physical Review Special Topics-Physics Education Research 5, 020101 (2009)

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